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PHOTOGRAPHIC WEATHER.

BY ELLERSLIE WALLACE.

THERE is quite a numerous class of persons following the photographic art, who, seeing the great possibilities of artificial illuminants, and the excellent results afforded by them, might be inclined to say with Macbeth, "I 'gin to be aweary of the sun." But on the other hand there are quite as many, if not more, who are not weary of the sun, and to whom photographic weather is a matter of primary interest and importance.

Professional members of the photographic commuhity who do much silver or bromide printing and lantern-slide making by daylight, always welcome such truly photographic weather as in our latitude is apt to occur in the latter part of September. Long successions of days often pass without the smallest speck of cloud, and the light is so even in actinic quality that prints and slides can be turned off by the hundreds no matter how the negatives may vary. The heat is not too great; there is no filling or blistering, and no yellow-whites in the print, while working in the collodion dark-room is entirely comfortable, and the light therein unchanging, so that development is sure and pleasant. For bromide enlargements nothing can be better.

So much for in-door work. But the out-door photographer, while benefiting also by the even light, may frequently run across subjects to which the full glare of the sun is anything but favorable. Many waterfalls and secluded forest glens would do badly in full sunlight. The glossy surfaces of the leaves reflect the sun's light right into the lens, and make ugly, patchy marks that

sometimes are so much like snow that people will ask how it was possible for a snowstorm to occur in mid-summer, and remark that they had not seen any account of it in the daily papers! The brilliancy of the full sun reflected from water will often fog every shadow in the picture, making a muggy, misty result out of what might be a clear, clean photograph. All that is necessary to secure the latter is to wait for an overcast day, when the light is soft and evenly diffused, so that there are no extreme high-lights as there are when the sun is shining.

Views of objects at great distances will often be most successfully taken in weather just the opposite of the September days we spoke of. Throughout all the eastern part of the United States the great drawback to photographing distances is the peculiar haze in the air which it seems nothing will remove but a violent rainstorm or continued cold weather. Very clear atmosphere often coexists with hard gales of wind, but there are some portions of our western states where the normal condition of the air is such that distances of forty or sixty miles may easily be photographed.

Any remarks upon photographic weather would, of course, be incomplete without mention of the clouds—those beautiful and ever-varying ornaments of our atmosphere. Even the strictly scientific study of them is entertaining, but it is rather their artistic qualities to which I wish to devote a few words. Various writers on meteorology give various classifications of the cloud-forms; for our purposes it will be sufficient to say that there are four principal varieties,—the nimbus, the cumulus, the stratus, and the cirrus. Of course much of the cloud seen every day is a mixture of two or more of the given varieties.

From the photographic point of view the cumulus is the most interesting, both because its fine large masses (Latin *cumulus*, a heap or mass) and distinct tone-values render it very amenable to photography, and because it is often seen at its best in good photographic weather. The fine-weather cumulus has an almost stereotyped form,—*i.e.*, a rounded top, a flattened or horizontal bottom, and prolonged wisp-like extremities, which latter, however, are sometimes wanting. Day after day these clouds make

their appearance about ten o'clock in the morning, accompanied with a breeze, refreshing indeed to the individual, but a bad thing for the photographer who is working on foliage. These clouds come together, and overcast the sky towards the latter noon hours, clearing away again towards four or five o'clock, when the wind also drops, leaving the foliage so still that exposures of almost any length may be made upon it with ease. Then the "cast shadows," as artists term them, begin to be seen, and of all hours of the day this is perhaps the best for the out-door photographer.

The nimbus or rain-cloud is dark in color and ragged in shape. It may often be successfully photographed when small portions of it drive across brilliantly-lighted cumuli lying at higher elevations.

The cirrus, often called mare's-tail, lies higher than any other cloud, sometimes at the extreme elevation of forty-thousand feet. They are believed to consist of water in some frozen form, as could hardly be otherwise when we remember the decreased temperature at such elevations. The Latin word cirrus, meaning a curl or lock of hair, applies perfectly to this form of cloud when rather broken in shape, but it is also to be seen in characteristic striæ or long parallel bands that are popularly believed to be the precursors of rainy weather. Beautiful as these clouds are, they are difficult to photograph. Their actinism and that of the blue sky surrounding are nearly the same. Some success may be had, though, by selecting only the most distinct specimens, and using very slow plates giving great contrast, and taking care not to overtime. I have seen some admirable results of the kind on collodion plates, intensified after fixing.

The stratus is what its name implies, merely a layer of vapor. It combines with the cirrus in various fantastic forms, and toward evening will often be seen lying on the horizon, either alone or beautifully resting across the bodies or breasts of enormous cumuli. Nature gives us no more magnificent illustration of the contrast of straight and curved lines than this. Authorities on æsthetics all agree that the curved line is the line of motion and action, while the straight line expresses rest or cessation of

action. Here then we find the two combined; the cumulus, which we may imagine as typifying the action of the day past and gone, crossed by the "line of rest" or stratus-cloud of the coming night.

Much of the charm of such mountain-regions as Switzerland, consists in the clouds that hang for hours or days about the rocky heights. No better subjects for the camera can be found. From the scientific standpoint, much of this so-called cloud is merely fog or mist, the elevation not being sufficient to permit formation into the regular cloud-forms. Besides this, the changeable air-currents are constantly breaking up the shape. But the very irregularity has a charm of its own, and the cloud-like forms below bend with the truer ones of the air above.

Singular as it seems, it is nevertheless quite true that sometimes better photographic results artistically are to be obtained by double-printing in a sky from another negative than by utilizing the "natural sky" of the negative itself, even supposing the latter to be free from pinholes and other photographic defects. I have enlarged somewhat upon the different forms of cloud and photographic weather, in the hope that some of the readers of the JOURNAL may amass a stock of cloud negatives to be used for double-printing. And I also hope that the habit of studying cloud-forms and weather will not be deemed unworthy of attention. It is possible to become quite weather-wise in this way, and whether indoors or out, the photographer will find it no mean addition to his practical resources.

Photography in weather that is either very hot or very cold is perhaps equally trying. In any of those processes where gelatine is used, heat is worse than cold. Means for chilling the solutions must be at hand, and I may here, in concluding, recall a bit of advice I gave to printers last summer who were troubled with frilling on gelatino-bromide papers: It is to perform the *first wetting* of the exposed paper either with a strong solution of white potash alum, or a properly diluted solution of chrome alum. The film being thus tanned at the first wetting, will go through the washings safely.

A NEW MODE OF LIGHTING.

XANTHUS SMITH.

IT cannot but be fully admitted by all who have to do with the subject of lighting heads for photographic portraiture that it is one of the most difficult problems to deal with connected with the art.

To the casual observer there would not seem to be anything hard of attainment in the securing of a photographic likeness of an individual. The supposition is that the camera cannot tell falsehoods, and, therefore, it would appear that all that would be necessary in taking a portrait, would be to place the sitter in front of the lens and make a suitably timed exposure of the sensitive plate, and, furthermore, that if the lighting of the sitter was of the most ordinary kind, the less arranged out of the usual way in which we see people, the more natural the person would look and the better the likeness would be.

Strange as it may seem, the above is certainly not the case—the reverse being true to so great an extent, that it is only by the most carefully studied posing and the greatest pains in lighting that we make the most satisfactory likenesses of people.

So much is there in what the painters call modeling, meaning thereby expression of form by light and shadow, that without a proper regard for it, or attention to it, nothing can be done in the way of making a good portrait. No more forcible means can be had of conveying the truth of this, than by studying sculptures, or their reproductions in plaster, good casts, in various lightings.

Take the most beautifully modeled head or full length figure and give it a strong front light emanating from a point on a level or a little below the level of it, and it will appear almost meaningless. It will be absolutely devoid of all beauty and impressiveness, and it will not be until the light has been directed from a high point that the true meaning of the work will be conveyed to the beholder.

It is the fact of the necessity of a high light which has made what is known as the sky-light, the indispensable requirement of

the portrait photographer, be he great or small. Be he on the fashionable throughfare of the great city, or by the wayside on the borders of civilization in his gallery on wheels, he must be able to pose his sitters under a sky-light. But, of course, there is a difference in the mode practiced in applying this overhead lighting. The crudest form is in the roof and one side of the structure of glass, the sitter being placed immediately under and beside these two sources of light, which being bestowed in their full force overdo the aim to be attained, while the more highly skilled artist, by a judicious use of space and a careful heightening and softening as may be required, so controls and as it were plays with his light that he attains the very finest results.

The greatest advance in portrait photography, and one which has become attainable by the use of the highly-sensitive dry plate, has been the softening of the light under which the sitter is posed. The old wet plate demanded a powerful lighting, which, though admirable for some strongly-marked characters, was not so well suited for refined and delicate types of beauty, such as we find in ladies and children.

A careful inspection of the refined work of our most skilled portrait photographers will reveal to the person of taste the great advantages of a soft lighting. He will see how harsh contrasts and consequent hardness, the latter a bad quality in art, are dying out, and that delicate and refined modeling, which is always a characteristic of the best art, is taking the place of the crude productions of the past.

Portraiture is a very difficult branch for the amateur photographer to deal with, on account of the impossibility of his securing a sufficiently high light. In regard to the softness of the light there is no difficulty, as apartments generally are not overlighted, and if they were it would be an easy enough matter, by the use of curtains, to cut off as much as would be necessary. But when we state that the proper light for a sitter should be admitted through an opening the bottom of which is from six to eight feet from the floor, it will be seen in how few dwellings such a thing is attainable. Trees in summer, when they are in leaf, and porches all the year round, destroy the possibility of

artistic lighting in most all country houses, and in the city neighboring walls have the same effect.

When a large window, high above the floor, can be secured, excellent portrait work can be done by attending to the following directions: If the window be large enough, stop off the light from the lower half. Place the sitter well back in the room from it, and facing considerably towards it. This will give a soft, broad, and rather high light, and by a sufficiently long exposure all the details will be brought out. One great advantage in thus placing the sitter in relation to the light is that the white reflector, usually necessary, may be dispensed with.

It is the usual custom with amateurs in making portraits to pose the sitter near to the window, so that one side of the face receives the direct light, and the difficulty of the heavy shadows upon the opposite side is obviated by the use of a white screen, which casts a reflected light; but in this arrangement there is the great objection that if the screen is placed close enough to the sitter to effectually overcome the blackness of the shaded side of the face, it destroys the clearness and depth of the eyes by throwing a strong reflected light into the pupils. Now, as the eyes should form a decided point, this is very objectionable, and it is more manifest even with persons who have large, dark, expressive eyes, than with pale-eyed people. It will be seen at once that this double-lighting of the eyes, for their glossy surface increases the force of the reflections, gives a blurred, pale, and confused look to them.

In the plan suggested, of having the light emanate from a high source, and placing the sitter well back from it, the face is more fully and equally lighted, and the light is more diffused, so that the white reflector may be altogether dispened with, there not being that violent contrast between the light and the shadowed side of the face that there is in the case of posing near to the window, and further, there is sufficient room to bring the camera more between the sitter and the light, thus preventing the bad effects of looking too much at right-angles to the light, which has a tendency to divide the face too equally into half light and half dark.

It will be seen in looking at the work of the best portrait-painters, and some of that of the best photographers, that such a lighting as above advised is very universally adhered to. If the character in the face be very strong, and the artist wishes to force it out, he increases the strength and directness of his light, thus producing what is called force of light and shadow, but such pictures are rarely pleasing to the individuals having their likenesses taken, there always being sufficient vanity in human nature to wish to have the asperities softened down as much as possible; so that the amateur who wishes to succeed in pleasing his sitters, and realizing a happy success for himself as a portrait-artist, must deal gently with his lights and shadows, making use of so much as will give the features roundness and proper projection without developing harshly the lines of character.

PHILOSOPHY OF ART.

PROFESSOR J. M. HOPPIN, of Yale University, at the late celebration of the American Philosophical Society in Philadelphia, read an interesting discourse upon the "Philosophy of Art," which might be summed up as follows: First. Art, through having to do with the perceptive faculties and the senses, is spiritual in its essence, and has its foundation in the inner susceptibility of the soul corresponding to outer forms. Second. Art is the interpretation of the significance and beauty of nature. Third. Art finds its laws and principles primarily in nature. Fourth. Art in its source is divine.

"The present is a favorable time to discuss art," said the speaker, "while we are having the great exposition in which art holds so conspicuous a place. I could not help but think that art will receive a great impulse in our land from those buildings which show an originality, some creative power, a pregnant significance of something new and of a style more truly American than that of the Middle Ages. The philosophy of art is briefly

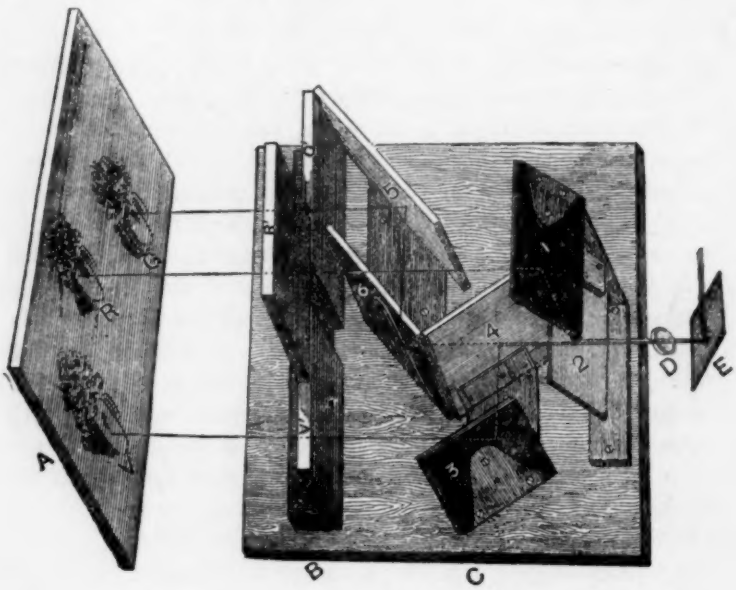
comprehended in the term æsthetics. Æsthetics was first used, comparatively recently, in Germany, to signify the philosophical classification of those mental faculties with which we perceive, and are pleasantly affected by the beauty of the world, and was made to compose the whole theory, production, and criticism of the world. Yet the word happily emphasizes one important element of art,—feeling, or the sense of delight in the perception of beauty; for art springs chiefly from the emotions and love; just as in the 'terribleness' of Michael Angelo's nature, averse to delights, there was one spring of joy—the love of his art and beauty. So, too, after the influences of the sceptical philosophy of the early part of the eighteenth century, which dried up the emotions, the new feeling for the beautiful, opened by the movement of romantic literature, produced such works as Faust and Wallenstein."

Professor Hoppin analyzed briefly the themes of æsthetics by the German idealists, Hegel, Schelling and Schopenhauer, giving the palm of ingenious consistency to Schopenhauer, but of profounder truth to Hegel, as laying the basis of æsthetics in the meed that contains the eternal idea of beauty. He then set forth his theory, criticising the common idea of dividing the mind into sections and neglecting the domain in which lies the creative power of imagination, or the form making the artistic faculty. He thought the artist, while he must possess the power of expression, must lay his chief strength in self-contemplation, the spirit. He thought the artist was mainly a poet, producing what nature tells him in form, line, and color as the poet tells us in words, and, though technique and the senses come in, for art's sake the higher, spiritual idea of beauty should never be lost sight of, if art is to grow and endure and take its place with the highest works of literature.

THE HELIOCHROMOSCOPE.

MR. F. E. Ives, in the course of a second paper on "Photography in the Colors of Nature," read before the Society of Arts in London, May 19th, 1893, gave the following description of his heliochromoscope.

The method of superposing three images upon a screen, by means of three separate objectives, is sufficiently known, and need not be described. The system employed in the heliochromoscope is not only a very different one, but, I believe, quite different from anything else that has ever been suggested. I shall try to make it clear by reference to a diagram, showing the construction of the perfected instrument.



A is the chromogram, B, C a removable baseboard, carrying the color screens B, and the mirror system C. D is an achromatic objective lens, and E a silver mirror.

Light transmitted by the image of the red sensation, R, passes through the red color screen, R′, to the silver mirror, 1, downwards to the transparent mirror, 2, and forwards (except the portion which passes through the transparent mirror and is lost), through the objective, D, to the inclined mirror, E, and upwards into the eye-piece, under which a reduced image is formed by the objective, D.

Light transmitted by the image of the blue-violet sensation, V, passes through the blue-violet color screen, V′, to the silver mirror, 3, sideways to the transparent mirror, 4, forwards through the transparent mirror, 2, and objective, D, to the inclined mirror, E, and upwards into the eye-piece, under which a blue-violet image is formed, exactly coincident with the red image. That portion of the light which passes through the transparent mirror, 4, is lost, and also that which is reflected downwards by the transparent mirror, 2.

Light transmitted by the image of the green sensation, G, passes through the green color screen, G′, to the silver mirror, 5, thence sideways to the silver mirror, 6, forwards through the transparent mirrors, 4 and 2, and the objective, D, to the inclined mirror, E, and upwards into the eye-piece, under which a green image is formed, exactly coincident with the red and blue-violet images. A portion of the green light is lost by reflection from the transparent mirrors, 4 and 2.

The fact that the light-rays, from R, V, and G, travel equal distances before entering the eye, and have a common axis after emerging from the mirror system, secures a direct blending of the images which must otherwise be projected upon a matt surface in order to be seen as a single image. Prismatic devices, as proposed by Du Hauron, and others, fail in this respect, and are, therefore, useless.

An optician will readily see, in the instrument as described, various apparent defects, none of which, however, are evident in the instrument as constructed. In the first place, in the absence of color-screens, the image of the green sensation, formed of light reflected from a central silver mirror, is much more brilliant than the other images, formed of the weaker portions of light

reflected from the central transparent mirrors, which are unsilvered, plane polished glasses. But the band of pure green light in the spectrum is very much narrower than the bands of red and blue-violet, and this apparent defect is, therefore, in reality, an advantage, because it permits of the use of a screen that transmits the light of only a very narrow band of spectrum green, instead of the broader band that would otherwise be necessary to make up white light. Another apparent defect is that, if the transparent mirrors have parallel plane surfaces, they will, if clear, give a doubled instead of a single image. This defect can be removed, by making the mirror 4 of canary-yellow glass, which transmits both red and green light freely, but destroys all the blue-violet light that is not reflected from its first surface; and the mirror 2 of a cyan-blue glass, which freely transmits both green and blue-violet light, but destroys all red light that is not reflected from its first surface. This method of correction is objectionable, because it reduces the intensity of illumination by nearly one-half. The method that I have adopted is to use thin glasses, having the two plane surfaces inclined to each other just sufficiently to make the two reflected rays coincident at D. Another apparent defect is found in the fact, that the amount of light reflected from the plane glasses used as transparent mirrors varies with the angle of incidence. With the arrangement shown in the diagram, the top of the image of the red sensation will appear brighter than the bottom, and the outside of the image of the blue-violet sensation brighter than the inside. The disk of light seen in the heliochromoscope—when the chromogram is absent and the instrument directed towards a white sky—will be white only in the centre, the outer portions showing a delicate tint of blue on the one side, yellow on the other, pink at the top, and green at the bottom. This defect has been removed by the simple expedient of inclining the color screens, so that the stronger ray passes diagonally through the colored glass and the weaker ray straight through.

The mirrors are attached to brass supports, and are adjustable by small screws pressing them against the springs by which they are held in place. But the adjustment is such a nice matter that

a twentieth of a turn of a single screw, having 56 threads to the inch, would make the instrument useless until it had been re-adjusted.

One of the cameras I use for making the chromogram negatives is a converted heliochromoscope, the eye-piece serving as an objective, projecting an image that includes nearly 50° angle of view. It may be readily reconverted into a heliochromoscope by substituting a chromogram holder and *pure* color screens for the plate holder and *selective* color screens. In this instrument, transparent axial mirrors are used for the images of the green and blue-violet sensations, and a pair of silvered mirrors for the red sensation, because the latter image must be made many times brighter than the others on the sensitive plate employed. This is a more compact and convenient form of camera than any other that I have devised for this purpose, for the aperture of the eye-piece is so small that it is necessary to give very long exposures —up to ten minutes on well-lighted landscapes with ordinary isochromatic plates.

When circumstances do not admit of the longer exposure, I use another form of camera, in which the mirror system is arranged in front of three separate objectives. This camera, in comparison with the compact inverted heliochromoscope, is somewhat clumsy, and includes a smaller angle of view, but has an effective aperture of about f.16 for the image of the red sensation, and requires not more than 30 seconds exposure for objects illuminated with clear sunlight.

AN AQUEOUS VARNISH FOR FILMS.

Soda carb	2 grammes.
Borax	8 "
Warm water	16 c. c.
Dissolve and add cruseed gum lac.	32 grammes.

Stir until the gum lac. is dissolved, add 2 grammes of glycerine, and enough water to increase the volume to 320 c.c. A deposit will form in the course of a few days which must be filtered out. The films, after half an hour's draining in the rack, are immersed in the varnish for five minutes.—*The Photographic News.*

ANACHRONISM IN ART.

BY "LUX."

IT has often been thrown at the photographer that he is given to being guilty in the above matter, that he is prone to give us portraits of ladies in ball dresses standing in front of a back cloth representing a landscape or leafy glade, and that the figures he sometimes puts into his figure and landscape composite pictures do not seem to mind from which direction the light on them comes, though nearly always it appears to have come through a window; consequently, you get a gentle, delicate landscape, showing only the diffused shadows of ordinary out-of-door daylight, while the figures are honored with good fat black indoor shadows.

Not the last person in the world to throw this stone at the photographer is the Artist Painter. It may be true that sometimes in your photographic portrait of a lady who is smiling at the canary perched on her finger, that the unfortunate bird is rather off his balance and suggests the taxidermist; and that in your other picture of a lady standing in the landscape, the sun is shining one way in the background, but is illuminating the fair sitter's features from a diametrically opposite point. Well, never mind, Messieurs Les Photographes, suppose it is admitted, what then? Does not Mr. Painter Artist ever make mistakes; is he entirely guiltless in these little matters? Does he never paint a gentle shepherdess, and they, in the flesh, are generally evil-looking to look at, and evil-smelling to—well, get to leeward of? Does he never paint her with the delicate chiselled features, brilliant orbs, and taper fingers of the novelist's duchess? Is not her linen of the driven snow, is not her waist perfection, and her bosom like unto that of a goddess? And yet recollection serves me to the effect that the genuine article is entirely innocent of what we call a waist, and she is usually quite square and flat, with the difference that where the twenty-inch waist should be, there appears an unpoetical robustness, and the goddess's bosom seems to have shifted on to her shoulder blades. And then, mark the prettily shod feet, in tasty slippers as a rule, with never a hole or a darn showing.

And who paints and draws the English soldier, say in the Mutiny time, galloping after the enemy and performing mighty feats of valor, on a spirited, high-actioned charger, that presumably has had no other food than bad grass for a month, which is *not* productive of much equine fire; the rider spotless as to accoutrements and uniform, and clean chinned and curly moustachioed, when, as a matter of fact, he probably has not seen a bed or a piece of soap for weeks? If he wears boots that were introduced twenty years after he was killed, and wields a sword, the pattern of which was used in the Peninsula thirty years before he was born, and if his horse's bridle could by no manner of means be got off without being cut off, and if his saddle, from want of proper girths, could only be kept in its place by an ingenious system of balance on the part of the horse and the rider. What then? How about that, Mr. Artist?

How often do we see, particularly in book illustrations (and this is where photography can be of such assistance), a modern lady and gentleman, may be, in a boat, the like of which was never seen out of a dream; said boat apparently having been built out of a cottage piano, as indicated by its timbers and size, allowing no room for the oarsman, and with the lady sitting opposite to him, so closely as to suggest that they both must have lost their lower limbs, there being absolutely no space for their stowage, which inclines one to the idea that perhaps they are obliged to take their exercise aquatically, pedestrian exercise being unfortunately denied them.

Then the handsome oarsman grasps two straight-bladed, square-bodied sculls, such as might have been used in the dinghy belonging to the Ark; these he uses between thole pins, instead of rowlocks, said pins being placed exactly on a line with his body and right under his elbows, so as to make it entirely impossible for him to row. After that, when you find that the boat, if measured over all, would be nearly five feet long, it occurs to you that a little less anachronism, if we may so call it, in the matter of boats would be a welcome change.

Then, Mr. Sporting Artist, you occasionally interest us. Your knowlege of guns—sporting guns to wit—is unique, and, of course,

you never draw a sportsman shooting at a bird in such a position that the charge, if the barrel is as straight as it appears, must, according to all laws of direction, pass some two hundred yards behind or before his game; and you never draw a gunner with a gun to his shoulder which, if the butt were put on the ground beside its holder, they (the gun and the gunner) would be found to be of equal lengths, with possibly the added charm of a flint-lock or percussion nipples.

We never, of course, see a picture of a man standing on a steep rock, salmon fishing in a waterfall, with a roach rod, several dead salmon lying by his side, said waterfall falling some fifty feet sheer; so that if a salmon by some unknown means could get hooked, he would have to do so in mid air after having swum up some thirty feet of perpendicular torrent, and then he would either get off or break the roach-rod, from want of running tackle, or pull the man off the rock, in which case, like Stephensons "coo," it would be bad for the man. I do not speak without the book, or rather the picture, for what I have described is in a dealer's shop window at the present moment within a quarter of a mile of me.

Stand confessed, Mr. Portrait Painter, did you never paint a picture wherein you depicted your subject or victim as standing on apparently a mountain top, with a thunderstorm going off several inches below the soles of his boots, and a background of curtain, hanging in graceful folds from nowhere, unless it be a balloon. Shade of Sir Francis Grant, P. R. A.! did you never paint a portrait of one of the Devonshire family standing in front of a window, and by the side of a table, on to the top of which you could see, while *underneath*, among the sitter's feet and the table's legs, was visible the horizon and a bit of Chatsworth Park; and when your attention was called to the fact, that you could not very well see on to the top of the table if the horizon was some three feet (in the picture) below it, were you not case-hardened enough to use the remark, that the observer "didn't know what a deuced high place Chatsworth was"?

But, gentlemen Painters, you are not so bad as you used to be, and in a great measure I think it is due to the fact that, instead

BALLOON PHOTOGRAPHY,

NEGATIVE BY W. N. JENNINGS, OF PHILADELPHIA, FROM PROF. KING'S BALLOON "EAGLE EYRIE," JULY 4TH, 1893.

ELEVATION BETWEEN 1500 AND 2000 FEET.

VIDE PAGE 385.

of having to rely upon your memory or imagination so much for necessary details, you can, and do, get great assistance from us photographers; for, if our photographs are not always pictures, they are generally pretty matter-of-factful.

People are getting more educated, and consequently more fastidious in art matters, and *will* have their details, and costumes, and accessories truthful. A case in point. A friend of mine, had to make a drawing lately of a naval subject, with naval officers in full uniform in it. He is always scrupulously, and even painfully, painstaking in his endeavors to be right in the matter of costume and period. In this case, howerer, he made a mistake. There had been an alteration made by the powers that be, a few weeks before, in the manner in which aiguilettes were to be worn. On the appearance of the drawing the editor received some half-dozen letters from people calling attention to the "absurd blunder" made by his artist, and yet in the most recent photographs of naval officers the change does not appear.

As another instance of a careful man, I remember the late Fred Walker, A. R. A., having to make a small drawing illustrating one of Thackeray's stories appearing in a magazine, representing a locksmith picking the lock of a desk. He would not draw it from an ordinary model got up to look like the character, nothing but the genuine article would suit him; so the neighborhood had to be scoured to find a real locksmith who would come in and sit, and from him the drawing was done—a real locksmith picking a real lock. But everyone is not nor has been so careful, and as I finish this article I call to mind a picture I once saw abroad of a Crucifixion. The Christ is on the Cross in the centre, and the two thieves are on either side, while a monk— a *monk*, mark ye—is holding up a *crucifix* to one of the thieves, and at and around the foot of the Cross are the soldiers playing dice, who are dressed in Louis XIV. costume. I think if ever there be a prize offered for the best bit of anachronism that picture will be there or thereabout—it ought to be—unless, indeed, it has the misfortune to be in competition with another that I know of, in which the Prodigal Son is shown driving home in a yellow postchaise.—*Photographic News.*

REGARDING THE TREATMENT OF ORIGINALS FOR PHOTO-ENGRAVING.

A FEW directions concerning the treatment of originals for process-engraving may be of value to printers not particularly well informed in the details of this branch of the art, in that they may gain an idea more or less definite of what may and may not be possible of accomplishment with photos and engravings of doubtful merit that happen to fall into their hands. An expert in process-engraving will often be able to secure very good results from relatively poor copy, but not every one engaged in process-reproduction is entitled to this description, and while this much to be regretted condition continues, it will be necessary to take the varying skill of engravers into consideration when estimating results.

In order to secure the best results for photo-engravings it is always necessary to pass competent judgment upon the condition of the original. In either half-tone or line-engraving, the image being reproduced on metal by photo-mechanical methods, the original is often capable of being treated in such ways as shall render a more satisfactory result than could be obtained otherwise. Originals vary so much that it is desirable to discuss them under different qualifications.

The most common class of originals for photo-engraving is, of course, the ordinary line-work, the engraving being known as the relief plate. Originals are in pen and ink, or on special lined or grained papers. Black ink is generally the first essential. In general practice high lights are often secured by cross-lines, and trimming up the edges with white ink.

Half-tone engraving has become the most important branch of photo-engraving. The question as to what can be reproduced by half-tone engraving is best answered by the expression: "Anything that can be photographed." The originals are ordinarily photographs and drawings in oils and washes. Many excellent results are also obtained from photogravure originals.

Since the photographs used for half-tone illustrations vary from almost every kind of amateur and professional prints, made under every conceivable condition, they call for a greater variety of retouching than is the case with other classes of originals. It is fully as often the case that there is need of strengthening the shadows as much as retouching the higher lights. Common instances of this are where light draperies appear in costumes or backgrounds. It is necessary to strengthen the outlines or shadows in order that there may be a distinction between the different parts of the picture in the reproduction. The addition of such details often prevents a chalky appearance. In retouching ordinary cabinet photographs the prints can often be improved by strengthening the high lights in the eyes and other points in the features, and sometimes by drawing a distinct line between portions of the head or costume and the background While the distinctions may be evident in the photographs, they are often lacking in the reproduction.

In some cases it is desirable to remove certain portions of the original, or to change the picture entirely. As a common example of this work, a recent photograph gave an excellent view of a noted horse, while equally prominent was the figure of a man at the horse's head. In the background was a fence of nearly the same strength of color as the figure; and then the man was entirely painted out, the outline of the fence being supplied by the artist's imagination. Going still further, all traces of the halter were removed from the horse's head, leaving the picture as complete and natural as possible. In the case of buildings, it is sometimes desirable to supply names, also to remove objectionable points. Signs can be very successfully painted upon the photograph by any good letter designer. In street views, it is often the case that blurs are caused by the movement of the figures. These defects are easily removed, either by painting in the details of the figure, or else by entirely removing the traces by painting in the details of the street or background.

Oil paintings yield very artistic plates, the rough texture of the originals giving a pleasing detail of background. In the

case of wash-drawings, it is often necessary that the lights and shadows should be exaggerated in the originals, in order to yield sufficient in the reproduction.

In the matter of vignetting photographs, it is often desirable to shade off the edges with paint, being a softer edge to work upon in the plate.—*The Camera.*

OUR OMEGA PICTURE.

THE question is frequently asked in commercial circles why it is that so few of the large army of professional photographers throughout the country, have made a success out of their efforts; as it is the exception to find a gallery which has produced for the owner, even after years of toil, a sufficient competency to enable him to live in comparative ease after reaching the age when it is supposed that a man's years of business activity are passed.

Many are the reasons given as being responsible for this condition; usually the blame is laid on the amateur and his modern helps and methods. The competition in business is also a favorite excuse. But few are willing to acknowledge that the true cause of the difficulty is due to the careless methods in the operating room, the total lack of businesslike system in the reception room, together with neglect to keep up with the current photographic literature and abreast with the improvements and novelties of the day.

Readers of the various photographic journals will have noticed during the last two years the partial decline in the use of albumen paper—many of the most progressive photographers substituting papers of the aristotype class on account of the exquisite results attainable by their use. The first paper to be extensively introduced was known as the "Omega," the manufacture of which has now, within three years since first placed on the market, assumed large proportions.

Our frontispiece, an Omega print, was toned and fixed separately, the regular furnished formula being used.

It is also stated that satisfactory results can be obtained by use of the following combined toning and fixing bath;

Hot water - - - - - -	1 gallon.
Hypo Soda - - - - -	12 ounces.
Borax - - - - - -	1 "
Alum - - - - - - -	3 "

Dissolve thoroughly, place in evaporating dish, heat to near boiling (180 degrees), let cool and filter.

For use, to each thirty-two ounces of solution add one drachm of an eight-grain solution of acetate of lead, and one grain chloride of gold. This ought to tone in about ten to fifteen minutes. If it should tone more rapidly than ten, add more of the stock solution, but if more slowly than fifteen add a little more gold. Do not wash the prints previous to toning, but place them dry into one bath, one at a time, being careful to manipulate briskly, and break any air bubbles. Do not place too many prints in the bath at once, and do not try to tone too many prints in a given quantity of solution. One quart of bath will tone and fix from forty to fifty cabinets. Do not try more. Throw this away and use fresh bath. Should the film become soft, rinse in two or three changes of water, and soak them a few minutes in a plain alum bath, about four ounces to the gallon.

Stop the tone very near where you want it, as there is very little change in drying. Wash thoroughly before mounting.

If there is any inclination to stick to the rubbing-down paper, use a soft wet sponge.

TRANSPARENCY MAKING FOR THE LANTERN.

BY ROBT. FAUNCE.

TO make a transparency for the lantern that will show bright and effectively on the screen, and yet be full of detail, is more difficult than one would at first sight imagine. A transparency that would be excellent for many other purposes, may fail to give satisfaction in the lantern. This fact has instigated manufacturers to turn their attention to the matter and supply special lantern plates that will, with ordinary treatment, provide images suitable for it. Even with such plates, success does not always reward the amateur who has often but a foggy idea of the kind of transparency really required.

Lantern plates are somewhat less sensitive than other kinds; the chief idea in their manufacture being to prevent flatness by over-exposure and blurring, which is very liable to occur with more rapid plates, and is fatal to good effect. It must not be thought when it is said to be necessary to have clear glass in the shadows (a phase which is at best somewhat misleading), that an under exposed picture is indicated. The term clear glass means that the image in its very deepest shadows, which really occupy but a very small portion of the plate, must be free from veil, perhaps about as much as the very highest light. In other parts detail should be everywhere made out; a plate that is given to blurring and halation by the strong lights overlapping and encroaching on the adjacent shadows, is a plate to be avoided, and with most rapid plates there is an inclination in this direction; it may not perhaps be noticed unless in some very pronounced light, such as a window in an interior, or strong light amongst the branches of trees, where it is seen to obliterate the thin branches in relief against it. This same blurring, however, may be present, although in a less conspicuous manner, all over the plate, destroying or damaging what would otherwise be a clear image. For other negatives and positives this kind of irradiation is not of very great importance, but no doubt all images would be better without it.

For instance, it gives a rather false idea of exposure, and when this is too brief, irradiation supplies the idea of sufficiency. It must be quite absent in all good lantern slides, and this is the condition called clearness, provided there is freedom from fog from other causes.

In examining a lantern slide, it is best to lay it face down, in close contact with smooth white paper, much detail will be then apparent that is quite invisible by transmitted light, and the clearness of the image should be such, that in just the deepest shadows there should be but slight difference in the color to the uncovered paper on which it lies. The different gradation can be observed in this manner better than in any other, but the density cannot. To estimate this, transmitted light must be used, and if a light approximating somewhat in color and strength to that it is intended to exhibit them by, so much the better; a fairer estimate of their quality can be made. The differences required in density must be judged according to whether they are intended for exhibition by oil or mixed gas lights. A perfectly good positive, or rather one that shows to best advantage with the lime light, would look thick and over-dense by the light of an oil lamp, and *vice versa*, so in preparing the slides the means to be used in showing them must be borne in mind. When making transparenciees, in our anxiety not to over-expose, we must avoid the other extreme, under-exposure, which I think of the two is the worse fault. Thousands of slides produced commercially are under-exposed; in fact the majority of those sold would be better for more exposure. The manufacturers, considering the much greater proportions of oil lamps used to gas, err on the side of thinness and clearness, for there is no doubt the public like the bright, clear pictures in preference to the thick, dull ones. However, this paper is not written exactly *pro bono publico*, but rather for those who estimate a lantern photographic slide for its real excellence rather than its meretricious attractiveness. At the same time the public are able to appreciate a good slide when they see it, and it will generally command applause as it appears on the screen, in the company of others less meritorious.

The densest part of a lantern slide should never be quite opaque, unless in tiny points of the very highest light. This is a rule that applies to every other photograph with half tone, but in the case of lantern slides very much less density all through is required, than in other kinds. If we lay them face down on a sheet of printed matter, the letterpress should be visible through all but the very densest parts, for a very much less obstructive film is able to cut off the light of a lantern, that would be insufficient to print or reproduce from. With regard to the method of production, they may either be made by contact printing or in the camera. Each plan has its advocates, and both have their drawbacks. When the negative is on a perfectly flat support, like patent plate, and the positive on the same kind of glass, there is no better plan than contact printing, or, if either one or the other is on a flexible support, so that their surfaces may be brought into good contact, this method of printing is without reproach. But as a rule the glass is far from flat; this being the case no amount of care will produce perfect results, some part or other of the picture will be more or less blurred or indistinct, making the lantern slide worthless. When the camera is used for the work, these irregularities are of no consequence whatever; the chief care is to focus the picture sharply, and judge the exposure rightly. Artificial light being used, the exposure is so under control that it may be calculated to a nicety; once get it right and any number of slides may be made of the utmost uniformity. To obtain the best results with the camera, every particle of light must be shut off from the plate, excepting that passing through the negative to form the image; the neglect of this precaution will often spoil, or at any rate injure, the brilliancy of the positive. In contact printing an opaque mask should be fitted over the negative, quite covering its edges, as the light radiated from the rough edges of the plate will cause a defect on the margin of the positive of sometimes half or three-quarters of an inch in width, according as it is presented to the light.

In the development of lantern slides a well restrained developer is required. A little bromide is an improvement in nearly

all kinds, even if they will work well without it for ordinary pictures. After development and fixing an acid bath of weak hydrochloric or sulphuric acid and alum, will be found of service in cleaning up the shadows and adding to the brilliancy. The color of the image is purely matter of taste. The length of exposure modifies it to some extent, a long exposure giving warmer tints than a short one.

It will be found that a rapidly-developed positive will be sev eral shades warmer than one that takes a considerable time to bring out, if the pyro-ammonia developer is used. The color may, however, be modified in many ways by after treatment with gold, uranium, &c. Mercury will give excellent colors, but for this special purpose is rather doubtful in permanency on account of the heat to which the slides are subjected.

The matter of temperature is not to be overlooked, and I am somewhat skeptical as to the permanancy of slides made on gelatine films, if hard worked. My preference is for collodion, which will stand any amount of variation of temperature with impunity, and be in other respects as good as and even better than gelatine, and for a peculiar delicate clearness, owing in a measure to the extreme thinness of the films, unapproachable. Gelatine of itself, no matter how free from color it may be, owing to its very thickness has an appreciable tint, and which, in the course of the preparation a slide has to undergo, will in all probability be somewhat added to. I am under the impression that if good collodion bromide lantern plates were in the market, their exceptional qualities would ensure a good sale. Until they are, there are no insuperable difficulties to making them at home; the only special necessity is, that they should be made in an apartment quite free from dust. Nothing is more easy than making the emulsion, for which several good formulæ have been published, and once made it will keep almost indefinitely. As to coating the plates, a little is poured on and off like varnishing, a slight rocking motion being giving to the plates as they set to equalize the coating, and then they are reared up on their sides to dry, the whole process being completed in a minute or two, and the drying in a very short time, when they can be stored in grooved light tight-boxes till required for use.

The greatest drawback to collodio-bromide is its extreme delicacy of surface, in comparison with gelatine. In the old wet plate days, as this was a constant condition, it was looked on as a matter of course, and the plates were treated accordingly, but the robust character of the gelatine surface has induced a certain carelessness, at least a lack of that exceptional care in the treatment of films, that by contrast makes the collodion seem more delicate than it really is. Dust, of all things, again, is the greatest enemy to the preparation of dry plates of any kind, giving rise to spots and defects that are sometimes very difficult to trace to their origin. Given exemption from this, collodio-bromide plaets may be prepared with the greatest facility, and the results upon them are beyond question equal to if not the best. With regard to the development of collodio-bromide, it is always preceded by moistening the film with spirit; in other respects it proceeds on the ordinary lines, and the density is judged by transmitted light, and which is producedby the addition of silver nitrate to weak pyrogallic and citric acid solutions.

A word or two about skies in lantern slides. In my opinion there is only one satisfactory method of adding them, and that is, by printing them on the cover glass in precisely the same way the landscape is done, and binding the two face to face together. If we attempt to print clouds on the same plate as the landscape the chances are that they do not come in exactly the right place, either overlaying the landscape in part, or not joining up sufficiently well, or they may be too dense or too light for the subject, the chances being rather more than equal that the whole thing is spoiled and will have to be done over again; but with clouds on a separate glass they can be placed to a nicety, and made just the right depth; if they do not turn out exactly right they can be done over again without sacrificing anything else. The cloud negative is sharply focused on the ground glass and the landscape to which it is to be added held in contact with it; thus the exact and best position for the combination is ascertained. When the cloud positive is dry the landscape to which it is to be added is held with it up to the light and the outline marked on the cloud positive, the part that would cover

the landscape is scraped off, and the lower portion of the remaining cloud image dissolved away, with a solution of iodine in cyanide of potassium, applied with a camel's hair pencil, and then after washing and drying is ready to be bound up with the landscape. With a moderate amount of deftness the junction of clouds and land will be as perfect as if they were taken at one exposure. The carbon process lends itself admirably to slide making, but as this process requires the same manipulation for lantern slides as for other prints, I merely refer to it as an excellent process, and worth cultivating more by amateurs than it is, especially in this direction.

OFFICIAL PHOTOGRAPHY AT THE WORLD'S COLUMBIAN EXPOSITION.

IT is an easy matter for people inclined in this direction to find fault, and in such an enormous undertaking as the World's Columbian Exposition there are naturally many things to which exceptions can be taken. But the Exposition is such a grand success, as a whole, and it has been carried out on such a broad plan that fault finding in most instances can only be of a dyspeptic sort. There is one matter, however, that has been allowed to drag which should have been taken up long ago, and which should, even now at this late day, be discussed in such a manner as to bring the attention of the Exposition management to it and lead to reform. We refer to photography in connection with the Exposition.

At the time of the Centennial Exposition dry plates were just coming into use and amateur photography was beginning to be popular. During these intervening years there have been no startling or radical changes in photography, but amateurs have become so skilled, and in many instances have produced such perfect specimens of work, that public taste has been educated up to the point where it accepts only good photographs—pictures in which the subject is well chosen and which also are well

developed and printed with care and judgment. So much progress has been made in this direction since the Centennial that people naturally expect to find on sale at the Columbian Exposition photographs that the photographic fraternities would feel proud of. There never has been opportunity for such a harvest of fine pictures as this exposition affords. It has a large amount of ornamental statuary that is acknowledged to be thoroughly artistic and beautiful. Its buildings are infinitely finer in design than anything ever seen in the new world. The grounds in which the Exposition is located are a masterpiece in landscape gardening. Many people of this country as well as many Europeans who have traveled extensively are astonished at the conception of the Exposition and at the beauty to be found in Jackson Park.

Yet, in spite of all these things, it is not possible to procure thoroughly good official photographs at the World's Columbian Exposition. The workmanship is in no respect better than was to be found at the Centennial. In fact, it is not as good, considering the fact that so many years have intervened and that so many improved processes have since been introduced. The subjects are selected with a lack of judgment and taste, and the developing is of ordinary quality. An exhibition by amateur photographers in any part of the country, judging by the samples that have been seen by members of photographic societies, could show specimens of work superior to the pictures offered for sale at the World's Columbian Exposition. The photographic department is such an appalling failure from the standpoint of the photographer, whether he be amateur or professional, that some public protest should be made against this condition of things before it is too late to have the necessary photographs taken to preserve some of the beauties of the Exposition. — *Scientific American.*

EARLY DAGUERREOTYPE DAYS—VII.

AN HISTORICAL RETROSPECT.

BY JULIUS F. SACHSE.

(Continued from Vol. XIII., page 550.)

AT the late gathering of scientists at Philadelphia in connection with the sesqui-centennial celebration of the American Philosophical Society, there were present three gentlemen, who half a century ago had assisted at the centennial of the organization in 1843. The oldest of the trio, in point of membership, was professor Martin H. Boyé, of Philadelphia, elected January 17th, 1840, who, in the days of his activity, was one of the most eminent chemists in the country.

It was during the opening address of President Frederick Fraley, wherein mention was made of the credit due Dr. Paul Beck Goddard, Joseph Saxton and others, for their efforts which resulted in making Daguerre's process of practical value, that Professor Boyé incidentally remarked to the writer that he had assisted Dr. Goddard at that time in preparing some of the chemicals for his earliest experiments, and that subsequently he made and furnished Robert Cornelius with the chemicals he required during the time he was in the "Daguerreotype miniature" business. Professor Boyé further stated that he ought still to have some of Cornelius's early experiments among his effects.

This statement aroused the interest of the listener, and after the celebration was over led to some interesting correspondence with Professor Boyé, which resulted in bringing to light a number of early speciments of the heliographic art, dated and authenticated beyond a question, together with some interesting reminiscences.

PROFESSOR MARTIN H. BOYE'S HELIOGRAPHS.

1. Three Daguerreotypes in ornamented brass frames. Chased and lacquered, all with printed label on back.

(a). A street scene taken by Dr. Goddard from the Cornelius studio at Eighth Street and Lodge Alley, looking up Eighth Street, showing

the west side to Filbert Street. This is probably one of the very earliest experimental Daguerreotypes taken at the Cornelius studio.

(b and c). Two portraits taken by Robert Cornelius of Professor Boyé at studio. Plates sensitized with iodine. Endorsement on label May 25th, 1840, Tuesday, 9¾ o'clock.

DAGUERREOTYPE
MINIATURES,
BY R. CORNELIUS,
Eighth Street, above Chestnut,
PHILADELPHIA.

2. Three Daguerreotype miniatures by Cornelius, enclosed in miniature cases. Oval brass mats between picture and glass.

(a). Portrait of Professor Boyé. Mat stamped, "R. Cornelius, fecit, Philadelphia." Date on glass, December, 1841.

(b). Similar portrait to above, taken at same time, but not considered a success. Not cased. Marked with diamond on the glass, December 6th, 1841.

(c). Portrait in case, taken same year. No date. Mat stamped, "R. Cornelius, Philadelphia" ("fecit" omitted).[2]

3. Three pictures taken by Cornelius in December, 1843, at rooms at Eighth and Lodge Alley. Date on glass, in ink. All taken at same time for making woodcut illustrations for Professor Boyé's paper on chemical analysis.

(a). Professor Boyé with book in hand, and filtering stand on table. Date on glass. Not used for woodcut.

(b). Prof. Boyé with filtering stand on table. Used without figure, for illustration of pouring from filtering glass on to filter without spilling (Fig. 17).

(c). R. Cornelius. Filtering stand on table, syringe bottle in one hand, and filtering glass in the other. Used, omitting figure, to illustrate mode of washing a precipitate from filtering glass on to filter (Fig. 18).

4. Two portraits (Mrs. Boyé) in miniature cases. Octagonal mats made presumably by John Plumbe,[1] No. 173 (now 505) Chestnut Street, Philadelphia, August, 1844.

[1] Vide AMERICAN JOURNAL OF PHOTOGRAPHY, Vol. XIII., p. 454.

5. Portrait of Mrs. Boyé by Jabez Mayall, Philadelphia, October, 1845, showing one of the first attempts at artistic posing.

6. A group by Jabez Mayall on plate 5½x6½, containing eight full-length figures. This Daguerreotype was exhibited by Mayall for a long time as one of the greatest triumphs of the heliographic art.

7. Two Daguerreotype portraits in velvet frames (Professor Boyé and wife), taken in Philadelphia, June, 1846, showing the great advance made at that time in Daguerrean art in Philadelphia.

8. Stereoscopic Daguerreotype of family group, taken by Mayall in London, 1853.

9. Photograph by F. Gutekunst, Philadelphia, September 18th, 1877.

All of above specimens of early heliography have been presented by Professor Boyé to the Historical Society of Pennsylvania, where, together with the earliest efforts of Saxton, Cornelius, Goddard, Langenheim, Root, and others, when properly arranged, they will form the most complete and important collection of original specimens illustrating the early history and development of photography to be found in the world.

INTERESTING PARTICULARS.

The three first specimens on this list form an exceedingly interesting study for the photographic student of the present day, as here we have the early professional portraiture in its crudest form.[3]

[2] By reference to the newspaper advertisement, reprinted on page 314, Vol. XII., AMERICAN JOURNAL OF PHOTOGRAPHY and Franklin Institute Reprint, page 10, there would seem to be a discrepancy regarding the location of the Cornelius Daguerreotype rooms. Both statements, however, are correct, as Cornelius after a short time returned to his first location, as is proven by statements to the writer by Professor Boyé, Frederick Fraley, Dr. W. S. Ruschenberger, the late Edward Tilghman, and others, who all have miniatures in their possessions taken during 1842 and 1843 at the latter location. That Cornelius's stay at the Market Street rooms was short, is shown by the fact that diligent inquiry has failed to produce any specimens or information regarding the Market Street rooms. An attempt was made, July 5th, 1893, to personally interview Mr. Cornelius on the subject, but on account of the feebleness incident to his advanced age, he utterly failed to recall any date whatever in connection with his former career.

[3] The specimen of studio portraiture, AMERICAN JOURNAL OF PHOTOGRAPHY, Vol. XIII., page 403: "Philadelphia's share in the development of photography (reprint)," page 10, is not in the original frame, it having been put in a regular miniature case when they came into use.

When Robert Cornelius opened his room at Eighth Street and Lodge Alley for Daguerreotype miniatures, he had absolutely nothing to use as a guide or precedent in the mechanical part of the process, and these specimens show how he used his ingenuity, and applied his knowledge as a metal worker. The copper-plate, which shows strong cross lines, measures 2¾x3¼ inches, the corners slightly turned up, so that it could easily be caught with the pincers, and that the cover-glass would not rub the image. The miniature, after it was fixed, was placed in a *struck-up* tin plate, 3⅜x3⅞ inches, having an indentation to receive the copper plate; a flange was turned up on the outer edge the thickness of the cover glass, the whole being secured together by a piece of brown paper pasted over the sides and back. The protected Daguerreotype was now framed in a solid cast and chased brass frame, either ormule gilt and lacquered, or else stained or acid bronze, according to the fancy of the sitter. These frames measured 5x8 inches wide, making the complete miniature 3¾x4¼, and were intended to hang against the wall.

The next series (2) shows the substitution of regular satin-lined miniature cases for the crude tin plate, the plate being protected from abrasion by the glass by an ornamental brass mat, having an oval cut-out.

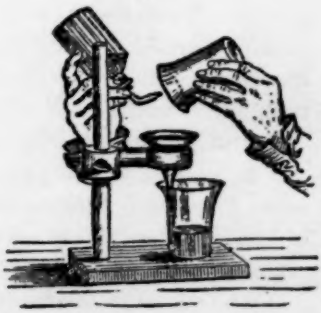
Series 3 is of great historical interest, as this is probably the first attempt made to use the heliographic process for book illustrations by the ordinary woodcut. The object of Professor Boyé was to get the exact position of the hands and apparatus, a very difficult thing to obtain by free-hand drawing. It was for this purpose that Prof. Boyé bethought himself of the Daguerreotype process. The various apparatus was taken from the laboratory (Booth and Boyé's old mint, No. 27 North Seventh Street) to Cornelius' rooms, and the plates made as before related, Professor Boyé and Cornelius changing places in two of the plates.

Drawings were then made from the plates on the wood by Oelschlager, reversed as they were, and when engraved the prints were right-handed. These blocks, which we reproduce, were

afterwards used in "Booth and Morfit's Encyclopedia of Chemistry," article "Analysis," by Professor M. H. Boye, fig. 17, page 170, fig. 18, page 171.

Fig. 17.

Fig. 18.



When these three Daguerreotypes were handed to the writer they were still in the original paper, wherein they had been wrapped just half a century ago. A copy of the *Public Ledger*, Saturday, December 30th, 1843, which contains the following announcement and two advertisements:

DAGUERREOTYPING NEWSPAPERS.—A copy of the *Boston Transcript* has been daguerreotyped of the size of an inch by an inch and a half. The heading, capital letters, and pictorial figures are clear to the naked eye, and by the aid of a twelve-power microscope the letter press may be read with ease.

FOR SALE.—A Daguerreotype apparatus made by Voigtlander, of Vienna, according to Professor Petzval's calculation, acknowledged by all to be the best instrument in use. It will be sold at a bargain if applied for soon. Inquire in Dillwyn Street, first house above Noble, east side.

N. B.—Instruction given in the use of the above if required.

NEW DAGUERREOTYPE ARTICLES.—Just received, a new supply of Voigtlander's large and small Daguerreotype apparatus, with achromatic lenses, made according to Professor Petzval's calculation. Also best German and French plates, German bromine, polishing substances, and morocco cases. All articles sold at reduced prices. Orders (postpaid) accompanied with remittances will be promptly attended to when directed to

WM. LANGENHEIM,
Exchange Building, Rooms 26 and 27.

A HISTORIC GROUP.

The group by Mayall (6) represents a class of students listening to the instruction of Professor Boyé in advanced chemistry

in November, 1846. It is of the greatest interest to the photographic student, not only for its technical excellence of that early stage of photographic development, but also because it indicates the early felt need of professional heliographers to acquire a fundamental knowledge of chemistry to be applied in their profession, for Jabez Mayall, who afterwards became one of the most celebrated Daguerreotypists in the world, was one of the students in the class, and appears himself in the group.

That it was mainly due to this instruction of Professor Boyé that he attained such high standing in the profession may be inferred from the fact that even when in the height of his success in London Jabez Mayall never forgot his old instructor in applied chemistry, Professor Martin H. Boyé, of Philadelphia.

The names of the figures on the plate are as follows: From right to left, Samuel G. Rosengarten; to his left, Professor Boyé; next above, Wm. V. V. Rosa, M.D.; back of him on same line, Jabez Mayall; on the left of table, which is covered with chemical apparatus brought from the laboratory, John M. Hewston, Philadelphia; more to the left, Francis S. Lewis; above and between them, D. Woods Baker, and to his left, Charles M. Wetherill.

As to the subsequent career of this class Mr. Rosengarten, graduate of the University of Pennsylvania, is now a member of the great firm of Rosengarten & Son, chemical works in Philadelphia. Jabez Mayall went afterwards to London, England, where he attained the highest standing in his professional art. D. Woods Baker, son of a furnace proprietor in Western Pennsylvania, entered the Coast Survey under Professor A. D. Bache, and while in the service lost his life by a boiler explosion on a Hudson River steamboat. Francis S. Lewis, brother of George T. and John T. Lewis, white lead manufacturers, a most promising young man, but fell early a victim to typhoid fever. Charles M. Wetherill, also a graduate of University of Pennsylvania, became professor of chemistry in Lehigh University.

A curious incident in connection with this picture is that originally there was another figure directly in the centre of the group. Professor Boyé at the time had a colored boy in his employ, who assisted in bringing over the apparatus, and when all was arranged,

he crouched behind the table. Just as the cap was removed he rose up, and when the plate was developed, there was "Cuffee" in the most conspicuous place in the centre of the picture. Wishing to exhibit the group, and fearing that his patrons and the public in general (not knowing how the portrait of the colored boy got in) might take umbrage, he carefully endeavored to "rub him out." In this, however, he was not altogether successful, as the faint figure still remains, though hardly traceable except at a certain angle.

PROFESSOR MARTIN H. BOYÉ.

Professor (Hans Martin) Boyé, M.D., A.M., Chemist and Geologist, M.A.P.S., etc., who is one of the oldest living graduates of the University of Pennsylvania, was born in Copenhagen, Denmark, December 6th, 1812. He received a complete classical education in Borgerdyskolen, a famous Latin school in Denmark. Subsequently he entered the University of Copenhagen, and in 1831 passed with distinction his Examen Philologicum et Philosophicum. In the year 1836 he came to America, and after a sojourn of a year in New York came to Philadelphia, attending during the winter of 1837–8 the lectures of Professor Robert Hare, professor of chemistry in the medical department of the University of Pennsylvania, assisting him at the same time in chemical investigations in his laboratory.

In the spring of 1838 he was appointed assistant geologist and chemist on the first geological survey of Pennsylvania under Professor Henry D. Rogers, accompanying the latter on a tour through the anthracite coal regions. The laboratory of the

state survey was established in Lodge Alley near Second and Walnut Streets.

During the year 1839 Professor Boyé was also assistant to the celebrated Professor Robert Hare, and it was during this period that his aid and opinion was sought by such early experimenters in heliography as Joseph Saxton and Dr. Paul Beck Goddard. Professor Boyé recalls many interesting incidents connected with the first experiments in the heliographic process. He distinctly states that to Dr. Paul Beck Goddard is due the success of Cornelius's early experiments at portraiture.

As to the first use of bromine, this was successfully accomplished by Dr. Goddard. Shortly afterwards Professor Boyé suggested a combination of bromine and iodine in definite proportions, and stated that he thought he could thus combine the two elements. On the following Sunday he took the compound to Dr. Goddard's house on Ninth Street above Chestnut opposite the University, Joseph Saxton and Wm. Mason, another early experimenter, both being present. This trio of scientists, together with Josiah Lukens, a well known Philadelphian, frequently met, and the constant interchange of ideas resulted in mutual benefit to all, and the rapid development of photographic chemistry and manipulation.

During this period Professor Boyé devoted much time to original chemical research, and in conjunction with Professor H. D. Rogers discovered a new compound of chlorate of platinum with binoxide of nitrogen, and determined by analysis its composition (Transactions A. P. S., N. S., VII., 59). In January, 1840, Professor Boyé was elected a member of the American Philosophical Society. In the summer of same year, with J. I. Clark Hare (now President Judge Phila. C. P.) he discovered perchloric ether, (Proc. A. P. S., I., 261), the first of those violent explosives which since the discovery of nitro-glycerine have received such extensive and varied applications. In 1841 Professor Boyé resumed field work with the state survey. In 1842 he, together with Professor James Booth, established a "Laboratory of Instruction" in practical and analytical chemistry, under the firm name of Booth and Boyé in the old United States Mint on Seventh Street

opposite Zane (Filbert) Street. During this time Professor Boyé attended the regular course of medical lectures at the University of Pennsylvania. In 1843 he also assisted at the private clinic of Dr. William Pepper at the Pennsylvania Hospital. This, however, did not interfere with his chemical researches, and in May, 1843, he read a paper before the Philosophical Society "On the Conversion of Benzoic Acid Into Hippuric" (Proc. A. P. S., Vol. III., 129). Upon his graduation as medical doctor he had at the same time conferred upon him by the collegiate department the honorary degree of A.M.

After the dissolution of the partnership with Prof. Booth, in 1845, Professor Boyé continued the school under the firm name until 1847, when he was called to fill the chair of natural philosophy and chem- istry at the Central High School of Philadelphia. This position he filled until February, 1859, when he retired to his farm in Lehigh County, about eight miles south of Bethlehem, on the North Penna. Railroad.

(*To be continued.*)

Much attention is just now being directed to the extent to which photography has in the past, and will in the future, help in elucidating astronomical problems. Hitherto that ubiquitous and, therefore, *pro tanto* valuable celestial skirmisher, the amateur astronomer has been practically, what is popularly called, "out of the hunt," on account of the great expense of driving clock and its complementary machinery. Mr. John Mills, F. R. A. S., has apparently cleared the way for those who seek for fame in heavenly regions, for he explains how, by means of an ordinary two-inch astronomical telescope, very satisfactory results may be obtained. Quoting from his article in *Science and Art* he says, "The *field lens* of the telescope itself was used as a photograhic lens to produce the picture shown" (a well-defined lunar photograph) the "camera employed was constructed out of a cigar-box;" a diaphragm of 3-16 of an inch was placed over the simple convex lens, and an exposure of twenty seconds given to a moderately rapid plate of lantern size.—*Lantern Review.*

Photographic Hints and Formulæ.

"Ivorine Rolland."—A new film, replacing opal plates for obtaining transparent positive pictures with ordinary printing frame. —The printing of these films is done exactly the same as that of albumenized paper. The toning and fixing are done simultaneously in a single bath. For ordinary prints allow to remain in printing frame until slightly deeper than desired, as they are reduced a little in the subsequent fixing. If intended for transparencies the prints should be toned until the shadows are bronzed. Good, clear negatives give the best result.

TONING AND FIXING BATHS COMBINED.

Formula 1.

FOR VIOLET TINTS.

A.—Distilled water	2,000 grammes.
Hyposulphite soda	400 grammes.
Sulfocyanide ammonium	25 grammes.
Ordinary alum	15 grammes.
Nitrate of lead	25 grammes.
B.—Distilled water	200 grammes.
Chloride of gold	1 gramme.

Formula 2.

FOR PURPLE TINTS.

A.—Distilled water	2,000 grammes.
Hyposulphite soda	500 grammes.
Sulfocyanide ammonium	50 grammes.
Phosphate of soda	25 grammes.
Ordinary alum	25 grammes.
B.—Distilled water	200 grammes.
Chloride of gold (brown)	2 grammes.
Chloride potassium	5 grammes.

To make the bath, pour the solution B into solution A in small quantities at a time while stirring the mixture. These baths serve continuously, but when they begin to get short, mix the old bath with equal parts of new solutions.

Place the films in the bath with the image upwards, cover them completely with solution, and as soon as the tone desired is obtained, take them out and place them in the following bath :

Water	1,000 grammes.
Hyposulphite of soda	500 grammes.

They are to remain in this bath about five minutes, this completely fixes them. After this, simply wash them during about one hour in running water.

Intensification of Gelatine Prints. — The *Photographisches Archiv* suggests the intensification of gelatine prints by means of physical development. It is important whether the prints have been toned or not, but it is necessary that all traces of the fixing agent should have been removed. Briefly, the prints may be intensified in the same way as gelatine negatives.

A print on aristotype paper, fixed and dried, is placed in a solution containing hydroquinone, tartaric acid, and silver nitrate. The proportions of these substances can be varied without inconvenience, except that there should be a quantity of the acid sufficient to prevent any reaction between the hydroquinone and the silver. A few drops of ammonia are added to the solution to neutralize it. This will effect a slight deposition of silver on the image, which may be increased by the addition of more ammonia to the solution.

Instead of hydroquinone other developing agents may be employed.

It is essential that the print before the solution is applied should have its gelatine surface flooded with water, otherwise the silver has a tendency to be deposited in the gelatine on a powdery form instead of acting as an intensifier of the image.

The Eclipse Photographs.—Highly successful as have been the two English expeditions, there now appears to have been a slight hitch in the photographic department of the one to the west coast. Mr. O. Fowler says in a report that the English signal of the commencement of totality, the discharge of a pistol, was not given until ten seconds after the French one, which caused him "to lose three exposures during totality, and reduced the number of Sergeant Kearney's photographs from twelve or ten." In reply to this Mr. S. E. Thorpe, in a letter to a daily contemporary a few days ago, says although he did not hear the French signal himself, that another observer estimates it at two seconds only, and adds, "It is possible, therefore, that Mr. Fowler's estimate of the seconds may not only have been erroneous, in consequence of the known difficulty of accurately estimating a time interval during the exciting conditions of an eclipse, but may also have arisen from the fact that the actual eclipse was shorter than the

calculated one." It can be readily understood, with the months of preparation and anticipation, and the thousands of miles traveled to execute 243 seconds,—French calculation two seconds less—work, that there would be some little excitement, subdued though it might be, during the brief period.

The thing can be better imagined than described.—*The British Journal of Photography.*

Frilling.—Apart from causes due to error in the manufacture of the plate, there are many little irregularities of handling which may result in the frilling of the film. By frilling is understood the separation of the film from its support, the gelatine puckering up into folds or wrinkles. Placing a negative directly under the faucet will sometimes start this trouble, especially during warm weather. Too much forcing in development, or even differences in temperature and density between two baths, will sometimes result in the frilling of the film. All solutions should be as nearly as possible of a uniform temperature. This applies really only to summer time, and is of no little importance then. For remedy, when it is apparent that the whole batch is similarly faulty, soak the plates for five minutes in

Chrome Alum	20 grains.
Water	8 ozs.
Alcohol	6 ozs.

These proportions are not absolutely necessary. Where frilling does occur in the developing or fixing bath, remove the plate and immerse in a bath of common alcohol until the film settles down and then proceed with either operation.

The American observers in Chili secured a photograph which gives an image of the sun, four inches in diameter, while the corona covers an 18x22 plate.

Platinum Toning Bath for Printing-Out Films.

Distilled water	1000 grammes.
Chloroplatinite of soda	2 "
Biturate of soda	1 "
Chloride of sodium	2 "

To use this toning bath it is necessary to push the color a little more, as their strength diminishes. When the picture has acquired a black purple tint, take out and fix, place face upwards in the following bath, taking care to avoid air bubbles.

Water	1000 grammes.
Hyposulphate of soda	300 "

After five minutes remove the film and wash it about an hour in running water.

After taking from the water and washing, rub gently under a small stream of water with the hand, or better, with a tuft of cotton wool to remove the dust which may adhere to it. They are then dried in a cool place free from dust.

Ammonium Hyposulphite.—M. Ch. Hermitte writes in the *Revue de Photographie* that the ammonical odor given off by ammonium hyposulphite, with which several continental photographers have been experimenting as a substitute for sodium hyposulphite, may be obviated by the addition to the solution of a small quanity of chlorate of potash. This, however, does not apply to all samples of the new hypo that are prepared, considerable variation in its quality being experienced. M. Hermitte recommends the following bath:

Water	1 litre.
Ammonium hyposulphite	150 grammes.
Chlorate of potash	10 grammes.

Negatives fixed in this bath are said to be beautifully clear, and in the quantity of solution mentioned fifty to sixty half-plates may be fixed. M. Hermitte finds an hour's washing in running water sufficient, but recommends for greater safety a longer immersion.

A Platinum Toning-Bath for Silver Prints.—The following bath is recommended by a foreign contemporary:

Water	500 c.c.
Sodium chloride	35 grammes.
Tartaric acid	8 grammes.
Sulphate of soda	6 grammes.
Chloroplatinite of potassium (12 per cent. solution)	8 grammes.

The salts are dissolved in the order named. The bath is said to give tones much resembling those of platinum prints, and to keep well.

Sulphocyanide of Ammonium in Uranium Toning.—Professor Rodolfe Namias, in the *Rivista Scientifico-Artistica de Fotografa*, recommends the addition of ammonium sulphocyanide to the uranium toning bath as a solvent of the ferrocyanide of silver and potassium, which, he says, is formed in toning, and to facilitate the deposition of the uranium ferrocyanide upon the image. The following is the formula he employs:

A.	Potassium ferrocyanide	2 to 3 grammes.
	Water	1000 c.c.
B.	Uranium nitrate	10 grammes.
	Ammonium sulphocyanide	50 grammes.
	Acetic acid	10 c.c.
	Water	1000 c.c.

Equal parts of the solutions are taken for use.

Messrs. Lumiere's Application of the Lippmann Method to Heliochromy.—The Lippmann method as originally published was generally recognized to be something far short of photography in colors; but now, in the skilled hands of Messrs. Lumiere Brothers, of Lyons, there seems to be growing out of it something like a definite heliochromic method, and at the last meeting of the Photographic Society of France, Messrs. Augusta and Louis Lumiere showed landscapes in which the blue of the sky, the green of the tree, the red tiles of the houses, and the gray tints of the buildings were produced with a surprising fidelity, although not absolutely as in nature. Indeed, it may be said that Messrs. Lumiere have gone as far towards the rendering of the mixed radiations from colored objects as Lippmann went in photographing the pure colors of the spectrum. Messrs. Lumiere prepare an emulsion as follows:

A.	Distilled water	400 grammes.
	Gelatine	20 grammes.
B.	Distilled water	25 grammes.
	Bromide of potassium	20 grammes.
C.	Distilled water	15 grammes.
	Nitrate of silver	3 grammes.

To the solution C half of A is added, after which the second half of A is mixed with B. The two gelatinous solutions are now mixed by pouring the solution containing the silver into that containing the bromide of potassium. A color sensitizer—such as cyanine, metlyl, violet, or erythrosine—is now added, but no details as to quantity are given. After filtration the emulsion, which is almost transparent, is ready for coating the plate; but as films of extreme tenuity are required, the whirling-table should be used, by which all excess of the emulsion is thrown off.

The temperature of the solution should not be higher than forty degrees centigrade. The coated plates are now immersed in alcohol for a short time, and after washing are dried. Before use, the plates are immersed for two minutes in the following:

Distilled water	200 grammes.
Silver nitrate	1 gramme.
Glacial acetic acid	1 gramme.

A plate being now dried, is ready for immediate exposure, according to the method of Lippman—that is to say, with the mercury in contact with the film.

As a developer the following is used :

1.	Water	100 parts.
	Pyrogallic acid	1 part.
2.	Water	100 parts.
	Bromide of potassium	10 parts.
3.	Ammonia of specific gravity	960

To develop, mix :

1.	10 volumes.
2.	15 volumes.
3.	5 volumes.
Water	70 volumes.

After development the plate is washed, fixed by immersion for ten to fifteen seconds in a five per cent. solution of cyanide of potassium, and dried. In exposure on a natural scene, a yellow screen should be used ; a solution of primuline, in a glass trough, having parallel sides, being mentioned.—*Photograph Work.*

Photo-Xylography.—Silver Prints on Wood.—

Gelatine	45 grs.
White soap	45 grs.
Water	5¼ ozs.

Soak the gelatine in water five or six hours, then dissolve in water bath. Add soap cut small, stirring well, add powdered alum till froth disappears, strain through muslin, cover black with mixture and a little zinc white, wipe off to leave very thin film.

When dry, apply with badger's hair brush coating of the following :

Albumen	3¼ ozs.
Water	2¼ ozs.
Chloride of ammonium	67½ ozs.
Citric acid	18½ ozs.

To make this, whip albumen to a froth, and let it settle, add water, next the sal ammonia, stir gently with a glass rod, then add citric acid.

Dry the block again and sensitise with

Nitrate silver . . . . . 187½ gr.
Water . . . . . 3¼ ozs.

When again dry expose under negative. When painted exact shade required, wash in strong solution common salt, wash in water, and fix in hypo. Wash for ten minutes, allow to dry.—*The Amateur Photographer.*

Metric Equivalents.—The metric nomenclature is coming into such common use, especially in scientific articles, that the following formulas will be found valuable:

WEIGHT EQUIVALENTS.

To convert grains into grams multiply by 0.065
To convert grams into grains multiply by 15.5
To convert drams into grams multiply by 3.9
To convert ounces (avoir.) into grams multiply by 28.4
To convert pounds (avoir.) into grams multiply by 453.6

MEASURE EQUIVALENTS.

To convert cubic centimetres into grains multiply by 15.5
To convert cubic centimetres into drams multiply by 0.26
To convert cubic centimetres into ounces (avoir.) multiply by 0.036
To convert pints into cubic centimetres multiply by . . . . 473.
To convert litres into ounces (avoir.) multiply by 35.3
To convert gallons into litres multiply by 3.8

BALLOON PHOTOGRAPHY.

ONE of the most interesting branches of photography, and one which has caused much speculation in scientific and military circles, is that known as balloon photography. Many are the trials that have been made and schemes promulgated, notably in France, for obtaining views of a large space of country, but thus far without producing results which may be called either satisfactory or practical.

It has been left to our townsman, Mr. Wm. N. Jennings, to solve the problem. At the last national holiday, July 4th, 1893, Mr. Jennings accompanied Samuel A. King, a well known aeronaut, on his ascension from Fairmount Park. The result is summed up in twenty good negatives, the first perfect photo-

graphs, so far as we have knowledge, ever taken from a free balloon.

Our accompanying illustration is a reproduction of the first snapshot taken on the trip, at an elevation of about 2,000 feet above the earth. The view shows the Columbia Bridge over the Schuylkill, and a portion of the East and West Park. In the foreground, as a fitting object of prominence, is the little steamer "Yankee Doodle," returning from her great race against time north of the bridge. (*See page 357.*)

Another successful plate was a snapshot taken when over Girard College at an elevation of about a mile above the earth. In this view the cluster of great buildings look like a plaster model on a damask tablecloth.

In achieving this success Mr. Jennings adds another leaf to the garland of Philadelphia's photographic triumphs, and proves that with intelligent manipulation and the aid of modern extremely sensitive dry plates and instantaneous shutters, it is possible to obtain isometrical views of large cities or a terrain of country which would have great practical value in times of peace as well as in war.

Mr. Jennings, in speaking of his experience and the difficulties to be overcome, states: "In the first place the earth seems to be rapidly receding, the focus constantly changing. Then the camera undergoes a complicated series of motions. The balloon rises rapidly in a diagonal direction, and revolves slowly during its flight, and the car swings to and fro; in addition to these difficulties, a blue atmosphere and vibrating heat-waves tend to produce flat, hazy photographs."

As for a novice hoping to get good balloon pictures, it is out of the question. Mr. Jennings states that his success was greatly due to five years' constant hand-camera practice under all sorts of conditions,—snapshotting from the front platform of street cars, the rear platform of express trains, the deck of ferry-boats, and getting fine sharp negatives from the roof of a rumbling bus. In his late balloon trip Mr. Jennings used a large camera which he held over the side of the balloon basket.—J. F. S.

Society Notes.

The International Exhibition at Hamburg, October 1st to 31st, 1893.—The purpose of the Exhibition is to educate and improve the existing taste of the public, and to create such a sense where it is wholly absent. The courteous and valuable assistance proffered by the Governing Board of the Gallery of Arts and the Committees of the various Artistic Societies at Hamburg will immeasurably assist in realizing these aims.

Although it must be admitted that photography cannot, in its present stage, compete with its sister branches of art, painting and sculpture, nevertheless the reflection arises that the devotees of amateur photography have, by their ardent pursuit of the art, as well as by the high skill to which they have attained, almost incurred a duty to their fellow members of the public thereby, inasmuch as a worthy exhibition of their work, especially if an international representation of the same can be effected, is well calculated to raise amateur photography if possible to a still higher pitch. But still more will such an exhibition most assuredly improve the taste of the general public, and in order to realize how desirable is the latter it is only necessary for any amateur photographer, irrespective of nationality or domicile, or even for one of his friends whose sense of art has been cultivated by his work, to examine the ordinary show cases of his professional colleagues. The efficiency of manipulation shown there, generally of a very high class, is also far too often entirely ruined by the conventional inartistic pose and surroundings of the sitters, drawbacks due in most cases to the utter absence of real artistic taste amongst the sitting public.

The powerful influence which is able to be exercised upon public taste is in no countries more in evidence, than in Great Britain and the United States, where professional photographers are in consequence of the high pitch attained by their amateur brothers of the art, now able to exercise an artistic license with which the uneducated public of the last decade were unable to sympathize and therefore objected to be associated.

Pictures submitted for exhibition may be sent either by amateur photographic associations or by unattached amateurs. No restrictions whatever are made as to dimensions, class, or subjects, and it is hoped that the more remarkable objects of nature and of man's industry, as well in architecture as in science, will be worthily represented.

All inquiries should be addressed to Das Ausstellungs-Comitee des Amateur-Photographen-Verein, Schwanenwik 33, Hamburg, Germany.

Photographic Society of Great Britain.—The exhibition of this society for 1893 will be held in the gallery of the royal society of painters in water colors, 5A, Pall Mall East, London, S. W.

CONVERSAZIONE.—The exhibition will be inaugurated by a Conversazione, open to members and their friends and exhibitors, at 8 p. m., on Saturday evening, the 23d of September.

ADMISSION.—The exhibition will remain open daily (Sundays excepted), from Monday, the 25th of September, until Wednesday, the 15th of November. Admission (from 10 a. m. till 5 p.m.), one shilling. It will also be open on Monday, Wednesday and Saturday evenings, when lantern slides will be shown; admission (from 7 to 10 p. m.) sixpence. Members have free admission at any time. They may receive twenty day or ten evening tickets for their friends, and can purchase additional tickets at half-price. Members of affiliated societies can purchase tickets at half-price of their respective secretaries.

MEDALS will be placed at the disposal of the judges for the artistic, scientific, and technical excellence of photographs, lantern slides, and transparencies and apparatus.

JUDGES.—The undermentioned gentlemen have been elected by the members of the society to act as judges, and have consented to serve:—P. H. Emerson, B. A., M. B. (Cantab.), Col. J. Gale, F. Hollyer, F. M. Sutcliffe, J. B. B. Wellington. Scientific experts—Chapman Jones, F. I. C., F. C. S., Andrew Pringle, F. R. M. S. The judges will select the exhibits before the hanging committee begin their duties.

REGULATIONS.—Each exhibitor must fill up the entry form supplied by the society, and send it to The Secretary, Photographic Society of Great Britain, 50, Great Russell Street, London, W. C. At the back of each frame must be written the name and address of the exhibitor, with the title or description of the photograph, and the number (if there are more than one) to which it refers in the entry form. Each frame or picture may have the exhibitor's name, and the title of the picture, neatly inscribed, and this only. Oxford frames and photographs already shown in any public exhibition within the London Postal District, will not be admitted. Negatives and transparencies, photo-mechanical prints, photographs of purely scientific interest, and photographs colored by hand, will not be admitted.

LANTERN TRANSPARENCIES should be fitted in a frame to stand upon the table; if not removable, duplicates should be sent for exhibition in the optical lantern. Lantern slides will be eligible for award only when both the negatives and slides are the work of the

exhibitor. With any work produced by a special process of the exhibitor, information as to particulars should be communicated.

CHARGES FOR EXHIBITING.—The privileges mentioned below are accorded to members of the socicty whose subscriptions are not in arrear, and are granted to them in their individual capacity only. A firm or company exhibiting in their corporate capacity is treated as a non-member, although one or more members of the firm may be members of the society.

CHARGES FOR WALL SPACE.—No charge will be made to members of the society; but to non-members a charge of one shilling per square foot, and to members of affiliated societies a charge of sixpence per square foot, will be made for wall space.

PRICE CATALOGUE.—A list containing the prices of pictures and apparatus to be disposed of will be laid on the table. It is desirable that exhibitors should state the price of their pictures on the entry form, as frequent inquiries are made respecting the prices of framed and unframed copies. Exhibits not priced will be marked in this catalogue as "not for sale." Ten per cent. commission will be deducted on sales.

FOREIGN EXHIBITORS are invited to contribute. The society will pay the carriage of photographs on the return journey, and provide frames or portfolios during the exhibition for photographs approved by the judges. There will be no charge for wall space.

BLANK ENTRY FORMS and any further information respecting the exhibition, apparatus and lantern slides, also nomination forms for membership, can be obtained from the Assistant-Secretary, P. S. G. B., Great Russell Street, London, W. C.

Obituary.—Mr. George M. Taylor, a director and one of the most active members of the Photographic Society of Philadelphia, died at Hotel Denis, Atlantic City, on the morning of July 26th, of pleurisy. Mr. Taylor, for over forty years, had been with the Penna. R. R. Co., and at the time of his death occupied the important position as auditor of freight receipts. The Photographic Society of Philadelphia, by the death of Mr. Taylor, loses one of its most useful and conscientious members.